



GOVERNMENT OF PUERTO RICO/OFFICE OF THE GOVERNOR  
Environmental Quality Board

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October 16, 2000

MR. BYRON C. BRANT, P.E.  
HEAD ENVIRONMENTAL  
TECHNICAL SUPPORT SECTION  
LANTDIV ENVIRONMENTAL DIVISION

**SUBJECT: COMMENTS ON:  
DRAFT EXPANDED PRELIMINARY ASSESSMENT/  
SITE INVESTIGATION (PA/SI)  
U.S. NAVAL AMMUNITION STORAGE DETACHMENT,  
(NASD)  
VIEQUES ISLAND, PUERTO RICO**

Dear Mrs. Brant:

Presented below are the comments on the Draft Expanded Preliminary Assessment/Site Investigation (PA/SI) at U.S. Naval Ammunition Storage Detachment (NASD) Vieques, Puerto Rico. These comments are subject to the approval of the Site Specific Work Plan and the Master Work Plan after being incorporated the comments already made by EPA and EQB.

**Section 2: Field Investigation Procedure**

In page 2-14, explain the last sentence of: the 2nd. paragraph: "No field samples were flagged for these compounds due to blank contamination", the last sentence of the 3rd. paragraph: "No field samples were qualified for blank contamination for these compounds", and the last sentence of the 4th. paragraph: "However, no samples were qualified due to metallic blank contamination".

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In page 2-17, Section 2.13.7 it says: "Sample results at, or near the Method Detection Limit (MDL) may be false positives caused by instrument noise or low-level background shifts enhanced by a matrix, rather than a true analyte signal. Additionally, concentrations reported at up to 5 times the MDL should be recognized as lacking accuracy or precision". Are these sample points re-sampled or is it unnecessary? Why the concentrations reported at up to 5 times the MDL should be recognized as lacking accuracy or precision and what did they do with these samples? Are these results compared with the applicable MCLs?

**Section 3: SWMU 4 (Inactive open burn/detonation unit):**

UXO Result Report: Sector A: 9 transects were cut. In a visual inspection numerous live UXO/OE items and OEW scrap was located. 4 MWs installed and 5 soil samples taken. Sector B: 5 transects were cut. 4 soil samples taken and 4 MWs installed. Type of UXO/OE located: 20mm HE, MK 230 fuze, Elec. blasting cap, Small Arms, Auxiliary Booster, 60mm mortar fuze. Sector C: 4 transects were cut. . In a visual inspection numerous live UXO/OE items and OEW scrap was located. No soil sampling or monitoring well installation took place in this sector.

Comment: Why no soil sampling or monitoring well installation took place in Sector C? Concur with the conclusion that additional investigations should be made due to the determination that the actual extent of the contamination cannot be determined.

Lab. Analytical Results: The preliminary background criteria obtained was from data collected from Camp García (Baker Environmental, Inc., Nov. 1999). Is this data from 1999 or the report was from 1999? This area was inactive since 1980 and the background have to be taken from data collected before 1980 to determine if the affected area was from military practices. Due to the wastes found is obvious that are from military practices and the background levels established shows that the area is contaminated with these wastes. Comparing the actual results with these background levels is going to demonstrate that the area is still contaminated despite the concentrations could have been decreased due to natural attenuation.

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*Y. J. Smith*

*Need to  
explain background*

### Groundwater Results:

Unfiltered (total metals) found: aluminum, barium, cadmium, iron, and manganese at concentrations exceeding the MCL and/or tap water RBC criteria.

Filtered metals (dissolved) found: barium and cadmium above the RBC criteria and manganese above the MCL.

In page 3-5, last paragraph, it says that "Aluminum, barium, cadmium, iron, and manganese were detected in all wells at relatively similar concentrations, indicating that the detections are likely the result of background concentrations and are not site-related".

Comments: These metals concentrations and the VOCs, SVOCs, and PCBs were compared with the established background concentrations at Camp García. What criteria they used to choose Camp García to establish background concentrations and not a cleaner area and/or nearest this site? We have to remember that at different sites they manage different wastes so the background has to be near each site but in a "virgin" area. Can these metals be product of the type of wastes managed in this area? **The data from MW-5 through MW-8 had not been validated at the time of this draft report and was not included. Data will be included in the final report.**

Table 3-1: Groundwater Analytical Data Summary:

Comments: Why the background concentration of some parameters were not included in the table and the MCL concentration of some parameters were not included in the table? What is MT, and T? The flags used to identified sample results have to be evaluated by a chemist. In page 2-10, second paragraph, it says that "Data that were not within the acceptance limit were appended with a qualifying flag, which consist of a single or double-letter abbreviation that reflects a problem with the data. In this table there are some results that were not flagged but there are no screening criteria, so to what criteria they compare these results?"

**Note: The GW flow goes to NE direction while the sea border the south of the site (Figure 3-2 and 3-3).**

### Surface Soil Results:

Analytical results indicate detections of aluminum, arsenic, iron, lead, thallium, vanadium, 2,4,6-trinitrotoluene, 2,4-dinitrotoluene, and hexahydro-1,3,5-trinitro-1,3,5,7-tetrazocine at concentrations above the residentisl RBC and/or leachability screening criteria.

In page 3-6, Section 3.6.2, second paragraph, it says that "Arsenic and vanadium were not detected above background criteria and therefore are not likely to be site-related." If in the place where they took the background sample exists concentrations of some metals, you have to compare with other background samples taken in other places more distant from the military areas. It is obvious that if Camp García is near the area, you are going to find concentration of

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some metals product of military debris. If arsenic, for example, is found under background concentration but there are concentrations of arsenic, you can not say that is not site-related if you don't compare this result with other more virgin backgrounds. Iron and thallium were not analyzed in background samples but they concluded that the above level detections are representative of background because concentrations were detected in most samples collected and is not site-related. Why did they say is not site-related?

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In same page 3-6, Section 3.6.2, second paragraph, last sentence, it says that "The detection of **aluminum** at SB04 and **lead** at SB06 were appreciably higher than the other samples, and may be attributed to site activities". How is that? In the case of aluminum, concentrations in soil may be site-related and the detection in GW is not site-related? They said that in GW are no site-related but all the site have similar concentrations and in soil there are points with higher concentrations and is site-related. Is this a valid argument?

The explosive derived constituents **2,4,6-trinitrotoluene**, **2,4-dinitrotoluene**, and **hexahydro-1,3,5-trinitro-1,3,5,7-tetrazocine** were detected above the residential RBCs and/or leachability criteria, and are likely attributed to site activities.

Comment: In Table 3-2 of Surface Soil Analytical Data Summary they included results of MWs 5 - 8 and they also included the results of SBs 1 - 12. What happened with soil borings 13 - 16 used for a second surface geophysical survey or this soil borings were converted in MWs 5 - 8?

**Subsurface Soil Results:**

"Arsenic and barium were detected in SB05 above background criteria and above respective leachability criteria. Because these metals were detected in all samples collected at the site it is likely that the detected concentrations are representative of background and are not site-related." How can you compare these results with a contaminated background area and determine that is not site-related?

Comment: In Table 3-3 of Subsurface Soil Analytical Data Summary they include results of MWs 5 - 8. They include the results of SBs 1 - 12. What happened with soil borings 13 - 16 used for a second surface geophysical survey or this soil borings were converted in MWs 5 - 8? They include some results of these soil borings 13 - 16 in Figure 3-4 (4-6') but not in Table 3-3.

**Conclusions and Recommendations:**

In page 3-7, Section 3.7, it says that "The data indicate that the metals detected in groundwater and subsurface soil are indicative of site background levels. Additional background studies will be conducted in November 2000 to verify background levels of metals in soils at NASD".

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Comments: The additional background studies are going to be from the same background place? How can the use of the same background place for all distant sites and sites with different wastes may affect the results comparison criteria?

*Need to establish not equal w/ 90% search Barium/arsenic*

**Groundwater:**

They concluded that the metal concentrations detected indicated that they are similar concentrations due to background levels in GW at the site. So, “no evidence exists to suggest that a release of hazardous materials to GW has occurred as a result of site-related activities. As a result, no additional GW investigations are recommended”.

Comments: In soil there were high concentrations of some of these metals. Did they evaluate the possibility of migration to GW? They recommend no additional investigation but they did not say anything of establishing monitoring activities due to possible migration in the future of contamination found in soil.

**Surface Soil:**

“Evidence exists to suggest that a release of site-related materials to surface soil has occurred as a result of site-related activities. It is recommended that additional surface soil samples be collected to delineate the extent of the site-related constituents.”.

Comments: Did they evaluate the possibility of using other background areas for comparison criteria?

**Subsurface Soil:**

“No evidence exists to suggest that a release of hazardous materials to subsurface soils has occurred at this site as a result of site-related activities. Therefore, no additional subsurface soil investigations are recommended for this site. However, an additional soil background investigation is recommended to characterize the background metal concentrations within the soils at NASD.”.

Comments: Did they evaluate the possibility of a double check of subsurface soil results after finishing an additional soil background investigation?

**Section 4: SWMU-5 (IRFNA/MAF-4 Disposal Site):**

Activities performed in April 2000.

“Data compared to applicable regulatory screening and preliminary background values.

This inactive unit is the site where, in 1975, approx. 7,000 pounds of fuel was emptied from leaking drums into a low spot in a road near Bldg. 422. The Quebrada where the disposal took place is in the probable recharge area for one of the few springs on the island that flows year-round. The site is less than two miles from Cattle Cooperative Well 3PW01 and a spring, both of which were used by the local cattle cooperative until 1992. The fuel contained 5,275 pounds

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of IRFNA and 1,775 pounds of MAF-4 which were emptied into the Quebrada. Much of the material has likely volatilized or biodegraded.”.

“During a previous investigation, one nearby spring was sampled for pH and Priority Pollutants. Zinc was the only constituent detected from this sampling, with a concentration of 0.469mg/L. No soil borings were installed at this site location.”.

4 SB were installed to depths of 6 - 21 feet along the ditch. Soil and GW samples were taken. Samples were analyzed for VOCs, SVOCs, and explosives.

Field Screening Results: The results indicate that OVM readings ranged from -0.1 to 9.5 ppm.

Laboratory Results: Background criteria were obtained from data collected from Camp García.

**Surface Soil Results:**

“Analytical results indicate a single detection of benzo(a)pyrene at levels slightly above the residential RBC at SB01. This constituent is a potential byproduct that may be derived from the asphalt pavement located adjacent to the sampling site.”.

Comments: In Table 4-1, why are there three other parameters that exceed more the residential RBC and were not mentioned?

**Subsurface Soil Results:**

“No constituents were detected above screening criteria.”.

**Conclusions and Recommendations:**

No evidence exists to indicate that a release of hazardous materials to surface or subsurface soil has occurred as a result of spill or site-related activities. As a result, no additional surface soil sampling is recommended and no additional subsurface soil investigations are recommended.

Comments: In page 4-3, Section 4.4 it says that “Figure 4-1 is a site map with the soil and groundwater sampling locations.”. There are no results of GW sampling and in Figure 4-1 no MWs were marked.

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**Section 5: SWMU-6 (Mangrove Disposal Site):**

Groundwater: Evidence exists to indicate that a release of site-related materials to groundwater has occurred as a result of site-related activities.

Comments: Concur with the conclusion of further assessment for the groundwater.

Surface Soil: Evidence exists to indicate that a release of site-related materials to groundwater has occurred as a result of site-related activities.

Comments: Concur with the conclusion that an additional background soil investigation is recommended to further characterize the background metal concentrations in soils. Also, additional soil sampling is recommended to delineate the extent of PAHs in the soils.

Subsurface Soil: Arsenic concentrations were all below the soil background criteria and were detected at similar concentrations, indicating that the detections are likely indicative of background conditions and are not site-related.

Comments: Concur that an additional soil background investigation should be made to confirm the range of background metal concentrations within the soils.

**Section 6: SWMU 07 (Quebrada Disposal Site):**

Surface Soil Results: Metals were detected in surface soil samples at concentrations indicative of site background levels. Benzo(a)pyrene was detected in two surface soil samples at relatively low concentrations. Benzo(a)pyrene was the only constituent detected that may be present as a result of site-related activities.

Comments: Concur that additional surface soil sampling should be made to delineate the extent of benzo(a)pyrene. In addition, a soil background investigation is necessary to verify the range of background concentrations of metals within the soils of NASD.

**Section 7: SWMU 10 (Waste Paint and Solvents Disposal Site):**

Field investigations included only the collection of 10 surface soil samples and 10 subsurface soil samples.

Comment: Why groundwater sampling was not included?

**Section 10: AOC C (Drainage Ditch Near Transportation Shop)**

Surface Soil Results: Metals were detected at concentrations indicative of site background levels.

Comment: Concur that an additional soil background investigation need to be done to verify the background soil conditions at NASD.

Subsurface Soil Results: Metals were detected at concentrations below background levels.

Comment: Concur that an additional soil background investigation need to be done to verify the background soil conditions of NASD.

**Section 11: AOC E (UST Site 2016)**

Previous investigations results showed that petroleum hydrocarbons were detected in one soil boring at a concentration of 42,000 mg/kg which is above the PREQB target level of 100 mg/kg. Based on this result, and because of exceedances of PREQB target levels, natural attenuation was cited for natural reduction of contaminant concentrations.

Comment: In this PA/SI field investigation no soil samples were taken to verify the success of the natural attenuation at present. Soil sampling is suggested to characterize the soil in this SWMU.

Groundwater: Petroleum constituents were detected and free product was measured in AOC E-MW 01. Evidence exists to suggest that a release of petroleum hydrocarbons to groundwater has occurred as a result of site-related activities. Concur that additional investigations are recommended to delineate the extent of the petroleum hydrocarbons within the groundwater at the site. In addition, concur with the recommendation that the free product have to be remediated.

**Section 12: AOC F (UIC Septic System Site)**

Subsurface Soil Results: Metals were detected at concentrations indicative of site background levels.

Comment: Concur that a soil background investigation is recommended to characterize the soil background conditions at NASD.